



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,239	06/16/2005	Kenichi Iwauchi	1248-0789PUS1	9262
2292	7590	09/06/2007	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH			MAKIYA, DAVID J	
PO BOX 747				
FALLS CHURCH, VA 22040-0747			ART UNIT	PAPER NUMBER
			2885	
			NOTIFICATION DATE	DELIVERY MODE
			09/06/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

TH

Office Action Summary	Application No.	Applicant(s)	
	10/539,239	IWAUCHI ET AL.	
	Examiner David J. Makiya	Art Unit 2885	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 17 May 2007.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-22 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 16 June 2005 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claim 14 is objected to because of the following informalities: it is unclear as to how the “light guide plate includes a plurality of the first light guide layer on the second light guide layer” and also “placed so that light guide surfaces...are opposed with a certain interval therebetween.” The examiner is unsure what the applicant intends as the claim states the layer to be on the other layer, meaning that it would not be able to have an interval therebetween if they are on one another. Claim will be interpreted as best understood.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-11, 14-15, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Winston et al. (US Patent 5,594,830).

With respect to claim 1, Winston et al. teaches a light guide plate comprising a first light guide layer 12 having a first end 20 on which light from a light source 22 is incident, a second end 26 opposite the first end and a first side 16 between the first and second ends, the first light guide layer made of a material having a refractive index n1 (Column 5, Lines 44-46); and a scattering light guide layer (28, 38) stacked on the first light guide layer first side for emitting light as scattering light (Figure 2H), wherein the scattering light guide layer includes a second

light guide layer 28 made of a material having a refractive index n2 (Column 6, Lines 8-11) lower than the refractive index n1 (Column 6, Lines 2-28), adjacent to the first light guide layer first side, and a scattering layer 38 for scattering light propagating to the second light guide layer (Figure 2H), reflection means 14 at the first light guide layer second end for changing an angle of light propagating in the first light guide layer and reaching the second end, so that the light is incident on the scattering light guide layer (Figure 2H), and the first light guide layer causes total reflection of light, incident on the first light guide layer from the light source, at the first side and a second side 14 opposite the first side (Figure 2H).

With respect to claim 3, Winston et al. teaches the light guide plate wherein the scattering layer and the second light guide layer are integrally formed (Figure 2H).

With respect to claim 4, Winston et al. teaches the light guide plate wherein the second light guide layer of the scattering light guide layer contains a light scattering object 41.

With respect to claim 5, Winston et al. teaches the light guide plate wherein the scattering layer is constituted of depressions and projections formed on a surface of the second light guide layer, the surface being opposite to the first light guide layer first side (Figure 2H).

With respect to claim 6, Winston et al. teaches the light guide plate wherein the reflection means is disposed so that light incident on the reflection means is reflected at an angle smaller than an angle shown by $\sin^{-1}(n_2/n_1)$, with respect to a normal direction to the first light guide layer first side (Column 6, Lines 29-40).

With respect to claim 7, Winston et al. teaches the light guide plate wherein the reflection means is a hologram (122, Figure 12A).

With respect to claim 8, Winston et al. teaches the light guide plate wherein the first light guide layer further includes another scattering light guide layer 14 on the second side.

With respect to claim 9, Winston et al. teaches the light guide plate wherein the scattering light guide layer further includes a reflection member on a surface opposite to a surface on which the first light guide layer is formed (Column 6, Lines 60-63).

With respect to claim 10, Winston et al. teaches a lighting apparatus comprising the light guide plate and a light source 22 for irradiating the first light guide layer of the light guide plate with light (Figure 2H).

With respect to claim 11, Winston et al. teaches the light guide plate wherein the light source is so placed that an incident angle of the light incident on the first light guide layer with respect to the light guide first surface of the first light guide layer falls in a predetermined range (Column 6, Lines 29-40).

With respect to claim 14, Winston et al. teaches, as best understood, the light guide plate wherein the light guide plate includes a plurality of the first light guide layers (12, 30) on the second light guide layer 28, the plurality of the first light guide layers being placed so that light guide surfaces of the plurality of the first light guide layers are opposed with a certain interval therebetween, and the light source is provided between the light guide surfaces (Figure 2C).

With respect to claim 15, Winston et al. teaches the light guide plate further comprising a mirror 88 for guiding the light from the light source to the first light guide layer (Column 1, Lines 63-64 and Column 18, Lines 29-42).

With respect to claim 18, Winston et al. teaches a display apparatus comprising the light guide plate (Column 7, Lines 57-61).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winston et al. in view of Mochizuki et al. (US Patent 4,737,896).

With respect to claim 2, Winston et al. teaches the light guide plate as described above, but fails to teach a light focusing optical element included on the light guide surface. Mochizuki et al. teaches a light guide plate comprising a light guide layer 21 and a light source 11 where the light guide layer includes on a light guide first surface a light focusing optical element 20 for focusing light incident on the first light guide layer in a certain range of angles with respect to the light guide first surface (Figure 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the light guide plate of Winston et al. with the teachings of Mochizuki et al. because the light would be “utilized at a high degree and which provides rays of superior directivity for illumination” (Mochizuki et al.; Column 1, Lines 51-55).

With respect to claims 12 and 13, Winston et al. teaches the light guide plate as described above, but fails to teach a light focusing optical element included on the light guide surface. Mochizuki et al. teaches a light guide plate comprising a light guide layer 21 and a light source 11 where the light guide layer includes a cylindrical, light focusing optical element 20 for focusing light incident on the first light guide layer of the light guide plate, so that the light is focused in a certain range of angles with respect to a stacking surface of the light guide plate. It

would have been obvious to one of ordinary skill in the art at the time of the invention to modify the light guide plate of Winston et al. with the teachings of Mochizuki et al. because the light would be “utilized at a high degree and which provides rays of superior directivity for illumination” (Mochizuki et al.; Column 1, Lines 51-55).

Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winston et al. in view of Van Hees et al. (US Patent 6,951,401).

With respect to claims 16 and 17, Winston et al. teaches the apparatus as described above, but fails to teach a plurality of apparatuses being placed side by side. Van Hees et al. teaches a flat light source apparatus comprising a plurality lighting apparatus including a light source 6 and a light guide plate 5 being placed side by side (Figure 3B) and reflection means 10 of one of two lighting apparatus is opposed to the reflection means of another lighting apparatus (Figure 3B). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus of Winston et al. with the teachings of Van Hees et al. because placing a plurality of apparatus side by side would “realize an increased brightness of the illumination system” (Van Hees et al.; Column 12, Lines 5-12) and since it has been held that mere duplication of essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

With respect to claims 19 and 20, Winston et al. teaches the light guide plate wherein the first end includes a first surface through which light from a light source enters the first light guide layer (Figure 2H) as described above. However, Winston et al. fails to teach the second side parallel to the first side or the reflection means obliquely angled with respect to the first surface. Van Hees et al. teaches a light guide plate comprising a first light guide layer 5 having a

first end 7 on which light from a light source 6 is incident, a second end (8, 10) opposite the first end and a first side between the first and second ends (Figure 1), a reflection means 10 at the first light guide layer second end and a second side opposite the first side (Figure 1), wherein the second side is parallel to the first side (Figure 1) and the reflection means is obliquely angled with respect to the first surface (Figure 1, 3D). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the light guide of Winston et al. to have the second side parallel to the first side and the reflection means obliquely angled from the teachings of Van Hees et al. because “light mixing in a light-mixing panel can also be used to homogenize the flux distribution...[and] has the additional advantage that dynamic illumination possibilities are obtained” (Van Hees et al.; Column 5, Lines 1-29).

With respect to claims 21 and 22, Winston et al. teaches a light guide plate comprising a first light guide layer 12 having first 20 and second 26 ends, the first end including a first surface through which light from a light source enters the first light guide layer, and the first and second sides between the first and second ends (Figure 2H), the first light guide layer having a first refractive index (Column 5, Lines 44-46); a scattering light guide layer (28, 38) stacked on the first light guide layer first side for emitting light as scattered light (Figure 2H), the scattering light guide layer comprising a second light guide layer 28 having a second refractive index (Column 6, Lines 8-11) less than the first refractive index (Column 6, Lines 2-28) and a scattering layer 38; wherein the first light guide layer causes total reflection of light (Figure 2H). However, Winston et al. fails to teach the second side parallel to the first side or the reflection means obliquely angled with respect to the first surface. Van Hees et al. teaches a light guide plate comprising a first light guide layer 5 having a first end 7 on which light from a light source

6 is incident, a second end (8, 10) opposite the first end and a first side between the first and second ends (Figure 1), a reflection means 10 at the first light guide layer second end and a second side opposite the first side (Figure 1), wherein the second side is parallel to the first side (Figure 1) and the reflection means is obliquely angled with respect to the first surface (Figure 1, 3D) wherein the first light guide layer causes total reflection of light at the second, reflecting, surface and at the second side. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the light guide of Winston et al. to have the second side parallel to the first side and the reflection means obliquely angled from the teachings of Van Hees et al. because “light mixing in a light-mixing panel can also be used to homogenize the flux distribution...[and] has the additional advantage that dynamic illumination possibilities are obtained” (Van Hees et al.; Column 5, Lines 1-29).

Response to Arguments

Applicant's arguments filed 5/17/2007 have been fully considered but they are not persuasive.

With respect to applicant's arguments that Winston et al. does not have a first light guide layer having first and second ends where light is incident on the first end and wherein reflection means are provided on the second end, Winston et al. teaches a wedge with a first end 20 and a second end 26 in Figure 2. As Figure 2H shows, the second end 26 is opposite the first end and has reflection means provided on it. The applicant implies that the second end is “an end surface,” but an end may also be a line or a point. Therefore, Winston et al. meets the claim limitations, as written.

With respect to applicant's arguments that Van Hees et al. does not have reflection means provided on the second end of the light guide, Figures 1-3 clearly show a light guide with a first end 7 and a second end 8 wherein a reflective layer 10 is provided on the second end.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Iimura (US Patent 6,039,452) teaches a light guide plate with a first and second layer with different refractive indexes.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

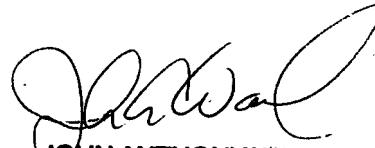
Any inquiry concerning this communication or earlier communications from the examiner should be directed to David J. Makiya whose telephone number is (571) 272-2273. The examiner can normally be reached on Monday-Friday 7:30am - 4:00pm (ET).

Art Unit: 2885

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong (James) Lee can be reached on (571) 272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DJM 08/28/2007



JOHN ANTHONY WARD
PRIMARY EXAMINER